

WHAT IS CLAIMED IS:

1 1. A method of identifying a superframe boundary
2 comprising:

3 summing data vectors for each symbol in a plurality of
4 superframes;

5 determining the summed data vector having the largest
6 magnitude; and

7 indicating the superframe boundary at the symbol position
8 correlating to the largest summed data vector.

1 2. The method of Claim 1, further comprising
2 synchronizing a plurality of modems based on the superframe
3 boundary.

1 3. The method of Claim 1, further comprising
2 representing data tones for each symbol as the data vectors.

1 4. The method of Claim 3, further comprising combining
2 the data tones of each symbol across the plurality of
3 superframes.

1 5. The method of Claim 1, further comprising converting
2 the summed data to power.

1 6. The method of Claim 5, further comprising comparing
2 a current summed vector with previous summed vectors.

1 7. The method of Claim 6, further comprising setting a
2 boundary flag when the current summed vector is greater than
3 all the previous summed vectors.

1 8. The method of Claim 6, further comprising
2 identifying a synchronization symbol based on the position of
3 the boundary flag.

1 9. A method of aligning modems comprising:
2 identifying the position of a synchronization symbol in a
3 superframe; and

4 aligning the symbols of each modem based on the position
5 of the synchronization symbol.

1 10. The method of Claim 9, further comprising
2 determining a summed vector having the largest value to
3 identify the position of the synchronization symbol.

1 11. The method of Claim 10, further comprising
2 communicating between each modem using discrete multitone
3 (DMT) symbols.

1 12. The method of Claim 11, further comprising
2 converting the DMT symbols into data vectors.

1 13. The method of Claim 10, further comprising combining
2 the data vectors over a plurality of superframes to create the
3 summed vector.

1 14. A communication system comprising:
2
3 a plurality of modems which communicate using a plurality
4 of superframes, each of the plurality of superframes having a
5 plurality of symbols; and

6 a synchronizer which identifies the position of the
7 superframe boundary, wherein the plurality of modems align
8 based on the superframe boundary.

9 15. The communication system of Claim 14, wherein the
10 plurality of modems are ADSL modems.

11 16. The communication system of Claim 14, wherein the
12 synchronizer determines the position of a synchronization
13 symbol of the superframes.

14 17. The communication system of Claim 16, wherein the
15 synchronizer compares a summed data vector of each symbol of
16 the plurality of superframes.

17 18. The communication system of Claim 17, wherein the
18 symbol position having the summed data vector with the largest
19 value is the synchronization symbol position.

1 19. The communication system of Claim 14, wherein the
2 plurality of modems communicate using discrete multitone
3 symbols.

1 20. The communication system of Claim 14, wherein one of
2 the plurality of modems communicates with a central office.